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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,268	03/10/2006	Michael Blumenfeld	BLUMENFELT ET AL.-1 (PCT)	1676
25889	7590	10/16/2008	EXAMINER	
COLLARD & ROE, P.C. 1077 NORTHERN BOULEVARD ROSLYN, NY 11576				
			ART UNIT	PAPER NUMBER
			1793	
			MAIL DATE	DELIVERY MODE
			10/16/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/566,268

**Applicant(s)**

BLUMENFELD ET AL.

**Examiner**

GUINEVER S. GREGORIO

**Art Unit**

4162

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 01/27/2006
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the converted gas stream" in lines 8-9. There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "the scrubbed hydrogen rich gas stream" in lines 9-10. There is insufficient antecedent basis for this limitation in the claim.

Regarding claim 1, the phrase "particularly" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claims 2 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Both claims 2 and 5 recite limitations on a medium temperature, high temperature, and low temperature. The definition of what applicant considers as medium, high or low temperatures cannot be ascertained from the specification and therefore the claims are rendered indefinite.

Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention. Claim 3 recites the limitation "technically pure". Unfortunately, the definition of what applicant considers "technically pure" cannot be ascertained from the specification and therefore the claims are rendered indefinite.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Fuderer (U.S. Pat. No. 4,553,981). Fuderer teaches a method for the complete removal of carbon dioxide from a gas stream along with the recovery of purified hydrogen (abstract, lines 10-13 and 4-5). Fuderer et al. teaches passing a gas stream through a scrubber for the removal of carbon dioxide (column 1, lines 33-34). Furthermore, Fuderer et al. teaches after the carbon dioxide removal the effluent gas stream is subjected to nitrogen scrubbing or cryogenic purification techniques to produce a hydrogen product stream along with a by-product fuel gas which corresponds to a product stream that consists of hydrogen and a waste gas stream (column 1, lines 35-42). Furthermore, Fuderer et al. teaches the carbon dioxide-depleted effluent stream is passed to a pressure swing adsorption system capable of discharging purified, hydrogen-containing product gas. Furthermore, Fuderer et al. teaches recycling a portion of methane-containing waste gas from pressure swing adsorption system for use in steam reforming, partial oxidation or coal gasification (column 5, lines 58-68). Furthermore

Fuderer et al. teaches the methane can be used for fuel which corresponds to combustion of waste gas (column 6, lines 53-54). Fuderer et al. teaches steam reforming, partial oxidation and coal gasification (column 1, lines 12-15).

Regarding claims 2 and 4, Fuderer et al. it is known in the art to carry out low temperature shift conversion upon completion of high temperature shift conversion which corresponds a conversion reactor operated at high-temperature having a subsequent low-temperature conversion reactor (column 3, lines 28-40).n Furthermore, Fuderer et al. teaches recycling the first 20-40% of the overall hydrogen rich gas released from the pressure swing adsorption system to the shift conversion step or effluent gas generation steps to avoid nitrogen and argon build-up in the recycle loop corresponds to a gas line that is passed back to the combustion chamber for firing the reformer with as gas stream that exits from the adsorption system (column 7, lines 19-40).

Regarding claim 3, Fuderer et al. teaches using a gas scrubber to separate carbon dioxide (column 1, lines 33-34). .

Regarding claim 6, Fuderer et al. teaches the carbon-dioxide-containing adsorber liquid is passed from flash tank through conduit to separation tank from which carbon dioxide waste gas can be removed from system through conduit (column 5, lines 16-19. Examiner takes the position that the removal of carbon dioxide gas from a liquid corresponds to a purification stage for concentrating the separated carbon dioxide because the product is pure, concentrated carbon dioxide gas that has been purified from the liquid.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GUINEVER S. GREGORIO whose telephone number is (571)270-5827. The examiner can normally be reached on Monday-Thursday, 10:30-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

gsg

/Jennifer McNeil/  
Supervisory Patent Examiner, Art Unit 4162